



Supply Chain Performance Analysis Report(ATLIQ Mart)

Supply Chain Data Analytics System

September 2025

1. Project Overview

AtliQ Mart is currently facing a problem where a few key customers did not extend the annual contract due to service issues. It is speculated that some of the essential products were either not delivered on time or not delivered in full over a continued period, which could have resulted in bad customer service. Management wants to fix this issue before expanding to other cities and requested their supply chain analytics team to track the 'On time' and 'In Full' delivery service level for all the customers on a daily basis so that they can respond swiftly to these issues.

2. Objectives

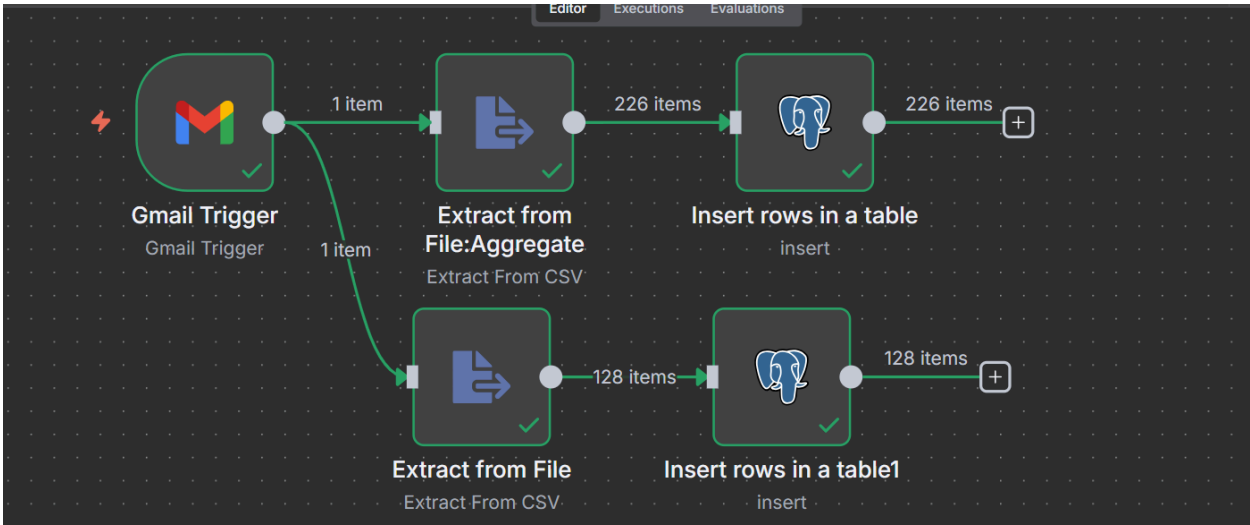
- Automate sales data extraction from emails.
 - Store and organize data in a centralized database (PostgreSQL on Supabase).
 - Enable natural language queries for easy analysis.
 - Calculate key supply chain metrics (LFR, VFR, OTIF).
 - Generate insights for monthly performance and customer trends.
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3. System Architecture

Workflow:

1. **Data Ingestion:** Sales CSV files extracted from emails using **n8n automation**.
2. **Database Management:** Cleaned and stored in **PostgreSQL hosted on Supabase**.

- 3. **AI-Powered Analysis:** Connected to AI-driven spreadsheet for query-based analysis.
- 4. **KPI Calculation:** Computed Line Fill Rate, Volume Fill Rate, OTIF.
- 5. **Insight Generation:** Produced monthly performance reports and customer segmentation.



4.Executive Summary

This analysis evaluates the supply chain performance using customer-level, regional, and overall KPI data. While the system successfully processes high volumes of orders, performance gaps exist in order fulfillment and delivery reliability. The most critical issue identified is the **low On-Time In-Full (OTIF) rate of 47.84%**, indicating significant room for improvement in both timeliness and completeness of deliveries.

5.KPI Performance Analysis

| KPI | Value | Interpretation |
|-------------------|--------|---|
| Total Order Lines | 24,195 | High order complexity with many SKUs per order. |
| Total Orders | 13,467 | Large customer base, multiple SKUs per order. |

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|---------------------------|--------|--|
| Line Fill Rate | 65.93% | Only two-thirds of order lines are fulfilled correctly; missing items are frequent. |
| Volume Fill Rate | 96.60% | Bulk quantities are mostly fulfilled; a major issue lies in SKU-level fulfillment. |
| On-Time Delivery % | 71.21% | Almost 3 out of 10 orders are delivered late. |
| In-Full Delivery % | 65.93% | Around 1/3 of orders are delivered incomplete. |
| OTIF % | 47.84% | Less than half of orders are delivered both on time and complete. Critical gap. |

Insight:

Bulk shipments are reliable, but accuracy at the SKU level and timeliness are poor, leading to a negative customer experience.

6.Customer-Level Insights

| Customer | Total Order Value | OT % | IF % | OTIF % | Key Takeaway |
|----------|-------------------|---------|---------|--------|--|
| Lidl | \$24.88M | 24.44 % | 74.72 % | 19.21% | Severe delays; customer experience risk. |
| Foodtown | \$24.75M | 81.98 % | 72.49 % | 57.45% | Decent performance, but fill rates need attention. |

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|--------------------|----------|---------|---------|--------|--|
| Whole Foods Market | \$24.31M | 82.63 % | 75.00 % | 62.01% | Strongest performer; relatively reliable. |
| Price Rite | \$24.05M | 83.67 % | 28.61 % | 23.12% | Poor fill rate, high stock-out risk. |
| Wegmans | \$23.42M | 84.91 % | 72.70 % | 61.93% | Stable performance, but improvements possible. |

Insights:

- **Whole Foods Market and Wegmans** are the best-performing accounts.
- **Lidl and Price Rite** are underperforming, with OTIF below 25%, which can damage long-term partnerships.

7. Regional Insights

| Region | Total Order Value | OT % | IF % | OTIF % | Key Takeaway |
|----------------|-------------------|---------|---------|--------|--|
| New Jersey, US | \$25.51M | 73.49 % | 66.32 % | 49.82% | Major market, but only ~50% OTIF. |
| Ahmedabad | \$20.79M | 70.40 % | 67.44 % | 48.44% | Consistent delays; below target OTIF. |
| Vadodara | \$20.50M | 69.91 % | 64.02 % | 45.36% | Lowest OTIF region, urgent improvement needed. |

Insights:

- All regions are **below the 85% OTIF benchmark** (common in FMCG supply chains).
 - Regional performance is consistently weak, suggesting systemic issues in planning, logistics, or supplier coordination.
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8. Strategic Recommendations

Short-Term Improvements

1. **Enhance Picking & Packing Accuracy** → Introduce barcode scanning and AI-based validation to reduce SKU-level errors.
2. **Fast-Track High-Value Customers** → Dedicated lanes for Whole Foods, Wegmans, and other top accounts.
3. **Delivery Prioritization** → Prioritize shipments flagged as at-risk of delay.

Long-Term Strategy

1. **Demand Forecasting & Inventory Optimization** → Leverage predictive analytics to ensure right stock levels.
2. **Supplier Performance Monitoring** → Track and manage supplier delivery reliability.
3. **Process Automation** → Use n8n workflows with AI to proactively flag orders likely to miss OTIF.

9. Technologies Used

- **n8n** → Workflow automation (email to DB pipeline).
- **PostgreSQL (Supabase)** → Cloud-hosted relational database.
- **AI Spreadsheet** → Natural language data analysis.

10. Conclusion

The current supply chain is handling **large volumes efficiently in terms of bulk shipments** but faces challenges in **accuracy and timeliness**. Improving **OTIF performance** should be the top priority. By adopting automation, predictive analytics, and customer-focused strategies, the organization can significantly enhance supply chain excellence and strengthen its competitive advantage in global FMCG markets.